



Qazvin University of Medical Sciences

Faculty of Health

**A Thesis Presented for the degree of Master of sciences
Health Sciences in Nutrition (MSc) in**

Title

**Effect of propolis supplementation on fructosamine,
activity of antioxidant enzyme catalase and the
oxidized-LDL level in patients with type 2 diabetes**

Supervisor

Dr. Hossein Khadem Haghighian

Adviser

**Dr. Sima Hashemipour
Dr. Mohammad Reza Shiri Shahsavar**

By

Sepideh Hesami

November – 2018

Abstract:**Background and aim:**

Diabetes is one of the most common metabolic diseases. It is undeniable that oxidative-inflammatory condition is a major factor in its pathogenesis and complications. Previous studies claimed that diabetic chronic hyperglycemia aggravates oxidative situations. This study aimed to evaluate antioxidant properties of propolis effect on fructosamine level, the catalase activity, and the level of oxidized-LDL in type 2 diabetic patients.

Material and Methods:

60 type 2 diabetic patients, were randomly assigned to one of intervention and placebo groups (n =30). Participants in the intervention group took propolis capsule (500 mg) 3 times a day and those in the placebo group took placebo capsules for 8-week. Fructosamine level, catalase activity and the level of oxidized-LDL were measured in the base and end of the study. Statistical analysis was performed using SPSS v-20 software.

Results:

Findings showed fructosamine ($P=0.02$), and the level of oxidized-LDL ($P=0.004$) decreased noticeably, and catalase activity ($P=0.03$) improved significantly in propolis treated group. However, these changes in the placebo group were not significant.

Conclusion:

Propolis as a supplement in type 2 diabetes has a potential to improve anti-oxidant defense and decline production of hyperglycemia-induced byproducts such as fructosamine.

Keywords: Propolis, Type 2 diabetes, Fructosamine, Catalase activity, Oxidized-LDL.